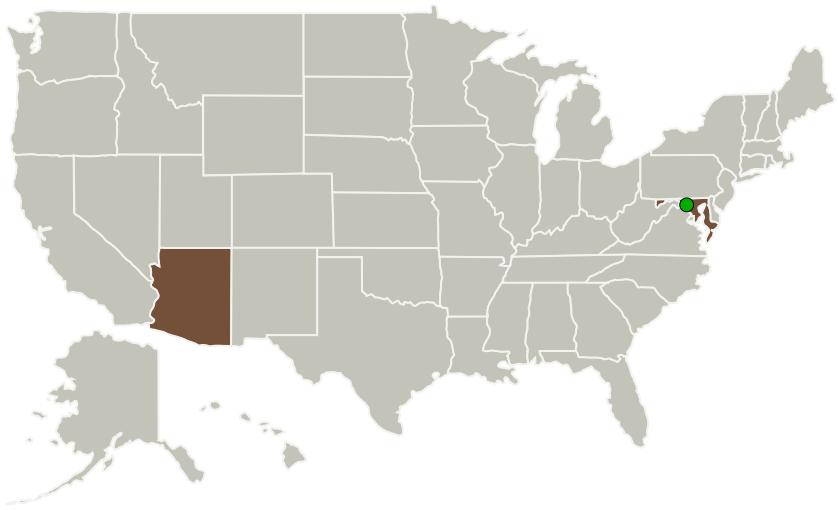
Atmospheric Lidar with Cross-Track Scanning, Phase I

Completed Technology Project (2013 - 2013)

Project Introduction

An eye-safe, multispectral cross-track scan subsystem with a large receiver aperture and a narrow FOV is proposed for the NASA Cloud Physics Lidar to increase horizontal area coverage. The +/-15 degree cross-track scan capability will cover +/- 5 km from nadir at a 20 km altitude. The cross-track scanner uses a whiskbroom pattern with three simultaneous scans and independent receiver FOV's which provides 30,000 points per sweep. Solar background is reduced with a narrow bandpass filter and a narrow transmitter linewidth with center wavelength control. The scanner accounts for the return pulse lag angle due to pulse time of flight. Vertical resolution is maintained at 30 m. Photon counting SPAD detectors and PMT's are used with photon counting modules and multichannel scalers.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Litespar, Inc.	Lead Organization	Industry	Tucson, Arizona
Goddard Space Flight Center(GSFC)	Supporting Organization	NASA Center	Greenbelt, Maryland

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Primary U.S. Work Locations	
Arizona	Maryland

Project Transitions

May 2013: Project Start

November 2013: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140379)*

Images

Project Image
Atmospheric Lidar with Cross-Track Scanning
(https://techport.nasa.gov/image/131582)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Litespar, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

William L Austin

Co-Investigator:

William M Austin

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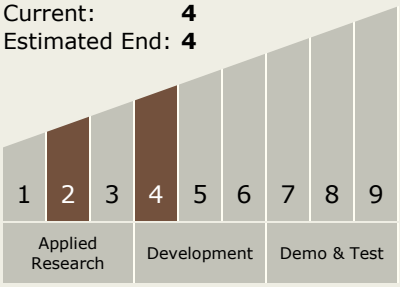
Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System